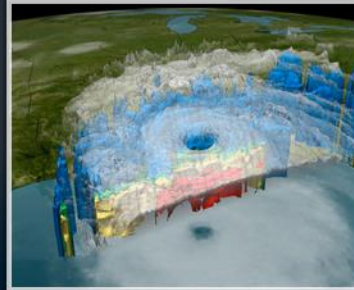
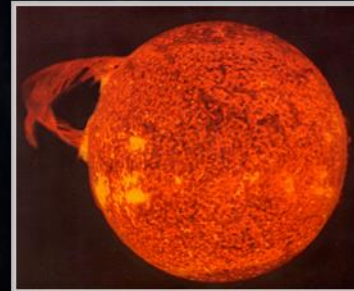
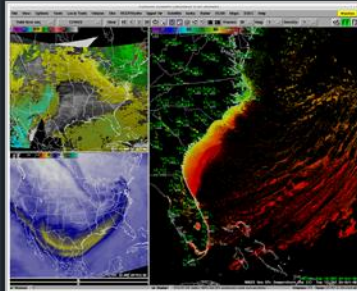
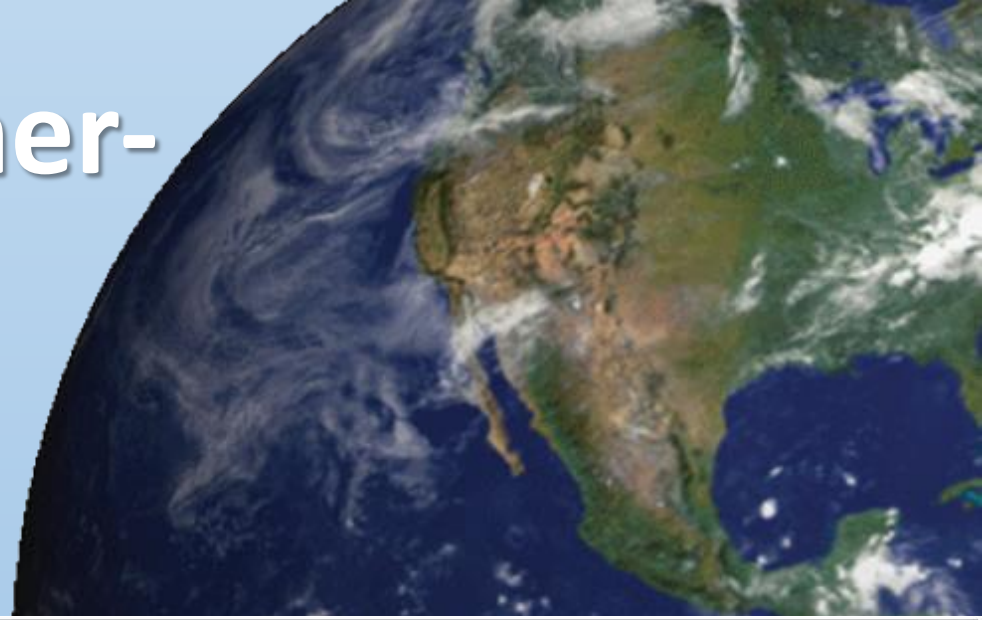


Building a Weather-Ready Nation

*NWS Office of Dissemination
Partners Meeting
January 14, 2016 · New Orleans, LA*





Topics



- Chronology
 - One-NWS Network
 - Dissemination outages during severe weather events
 - Responses by NOAA Integrated Dissemination Program (IDP), NCEP Central Operations (NCO) and NWS Office of Dissemination
- Background Slides & Afternoon Technical Partners Session
 - Overview of services available on the IDP system as of January 2016
 - Additional information provided in the afternoon partners technical session
 - Afternoon session includes discussion of Family of Service transition to IDP services and NOAA Weather Radio Transformational Change project

Dissemination NWS Network Updates

"One NWS" Network

100% Dissemination
Backup with College Park
and Boulder

- ✓ Physical plant fit-up & IT Equip Install for IDP Infrastructure in Boulder
- 100% backup at College Park and Boulder:
- Sep 2016 - NOMADS, MAG, FTPPRD, MRMS, MADIS, www.weather.gov
- Dec 2016 - NWSTG Functions Re-architected & NWSTG Silver Spring and Fairmont Retired

IDP Dissemination
Site DSRC
(Boulder, CO)

IDP Dissemination
Site NCWCP
(College Park, MD)

Network "Backbone"

Supercomputer
(Reston, VA)

Supercomputer
(Orlando, FL)

Functionality already
in place at College
Park as of Jan 2016

- NOMADS
- FTPPRD
- MADIS
- MRMS
- MAG
- VLAB
- Weather.gov
- nowCOAST
- DataStreame

WFOs
122/122 upgr

RFCs
13/13 upgr

National
Centers (upgr)

Internet

External
Partners

CWSUs/CMD
CTR
0/22

The future One-NWS network will consolidate all operational networks (OPSnet, Regional, etc.) under a single managed network.



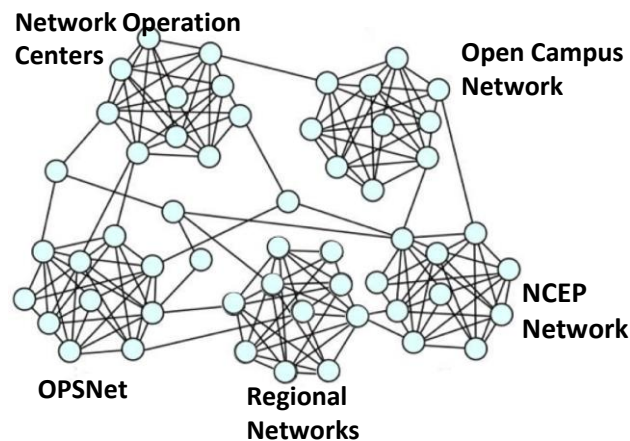
NWS Dissemination Portfolio Chronology



Dissemination Posture

- NWS dissemination weaknesses created through the years as individual efforts built stovepipes across the NWS enterprise
- These weaknesses resulted in telecommunications, Web sites and other system outages with near-national impacts during severe weather events
- These outages elevated to Congressional levels and highlighted the urgent need for organizational change and the development of a reliable and scalable NWS dissemination infrastructure to sustain 24 hours/7 days a week (24/7) mission operations
- **Seven multi-day outages occurred Nov-Dec 2013 during severe weather events**

The proliferation of dissemination system stovepipes across the enterprise created numerous mission, command & control, IT management and cost challenges



FY2000-
FY2013



NWS Dissemination Portfolio Chronology



Dissemination Posture

- During the time of critical dissemination outages, the NOAA Integrated Dissemination Program (IDP) was stood up
- IDP was to provide the NWS dissemination foundation for upcoming multi-billion dollar environmental satellite systems, enhanced models from NOAA's operational supercomputers, radar data, and the growing need for enterprise Web services
- IDP responded to NWS dissemination weaknesses created through the years resulting in telecommunications, Web sites and other system outages with near-national impacts during severe weather events



FY2013

IDP's strategic approach was to fully standup and systematically fix the NWS' dissemination systems including establishing command & control during outages



November 17, 2013 - Tornado Damage in Washington, Illinois - CNN

NWS Dissemination Portfolio Chronology

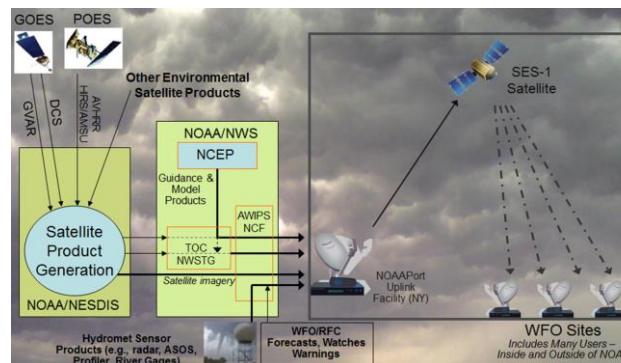
- Completed upgrade for the Satellite Broadcast Network (SBN – NOAAPort) from 30Mbps to +60Mbps
- Operationalized IDP NCWCP College Park, MD system to enable resilient & scalable enterprise dissemination services
- “Acting Portfolio Leads” helped to prepare for the NWS HQ and Budget Restructure

Dissemination
Posture

FY2014



IDP system at NCWCP College Park, MD stood up and managed by NCEP Central Operations



AWIPS Satellite Broadcast Network (SBN) / NOAAport

Started managing/providing command & control of NWS dissemination systems under the “Acting Dissemination Portfolio” and NCEP Central Operations



NWS Dissemination Portfolio Chronology



- NWS completed HQ & Budget Restructure across six portfolios (stood up Office of Dissemination)
- Completed NWS Telecommunication Operation Center merge with NCEP Central Operations
- IT fit-up for IDP system at DSRC Boulder, CO to prepare for a 100% backup
- As part of One-NWS network, completed internet upgrades for Forecast Offices
- Completed NWS Dissemination Network Resilience and Capacity Site Audits

Dissemination
Posture

FY2015

NWS Budget and Headquarters Organization Restructure Around Portfolios



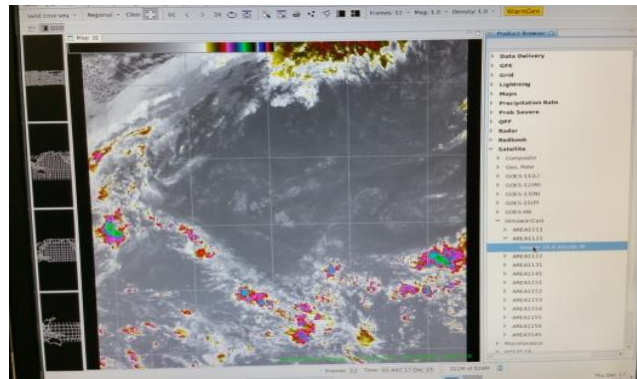
Merging Telecommunication Operation Center with NCEP Central Operations was key to improve cost effectiveness (saved \$6.8M starting in FY16), streamlined day-to-day IT management & escalation including command & control during outages

NWS Dissemination Portfolio Chronology



NHC's New GOES-R Antennas - Installation, training & NWS acceptance completed Dec 2015

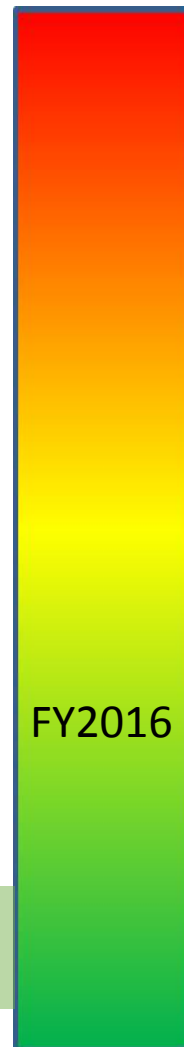
First HimawariCast Images at WFO Guam - AWIPS2 Display - Dec 22 2015



- Operationalize a 100% backup capability for NOMADS, MAG, FTPPRD, MRMS, MADIS, www.weather.gov at Boulder, CO & College Park, MD
- Complete deployment of GOES-R Re-Broadcast/Himawari antennas for eight NWS locations
- Complete One-NWS network upgrade for OCONUS

3 multi-hour outages occurred Nov-Dec 2015 with legacy systems during severe weather versus 7 multi-day outages which occurred Nov-Dec 2013 during severe weather events

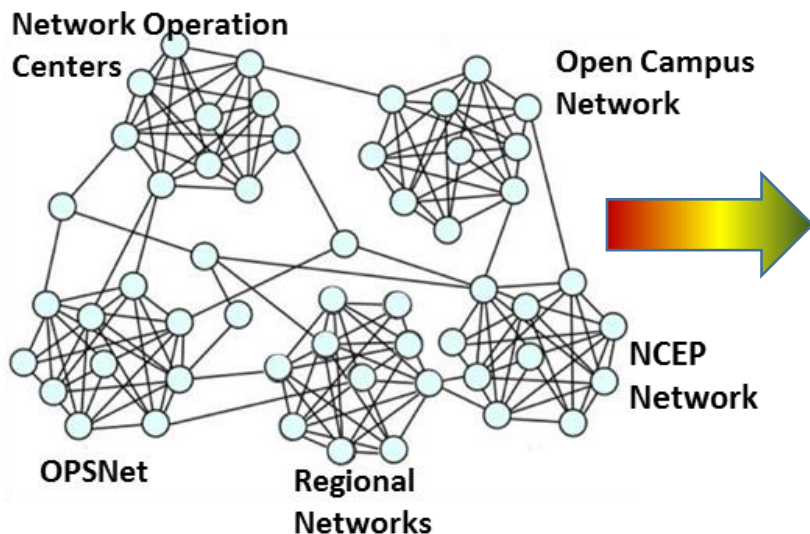
Dissemination Posture



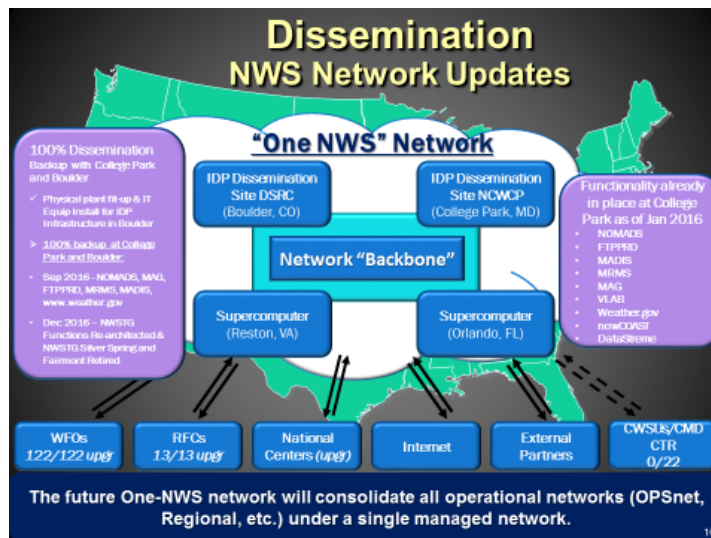
FY2016

NWS Dissemination Portfolio Chronology

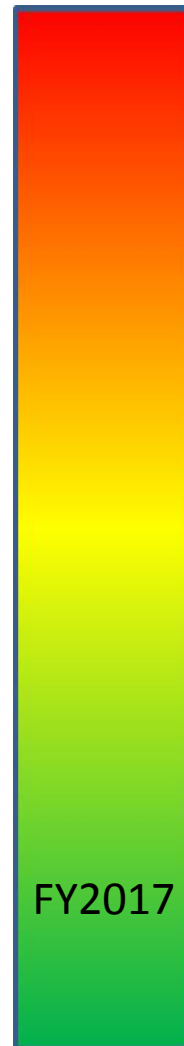
FY 2013



FY 2017



Dissemination Posture



- Complete transition of NWS Telecommunication Gateway (NWSTG) to IDP & decommission legacy NWSTG at Silver Spring, MD and Fairmont, WV
- Complete One-NWS network upgrades, including network resilience upgrades at approved budget levels, and decommission OPSnet & Regional networks



FY2017

Dissemination NWS Network Updates

“One NWS” Network

100% Dissemination
Backup with College Park
and Boulder

- ✓ Physical plant fit-up & IT Equip Install for IDP Infrastructure in Boulder
- 100% backup at College Park and Boulder:
- Sep 2016 - NOMADS, MAG, FTPPRD, MRMS, MADIS, www.weather.gov
- Dec 2016 – NWSTG Functions Re-architected & NWSTG Silver Spring and Fairmont Retired

IDP Dissemination
Site DSRC
(Boulder, CO)

IDP Dissemination
Site NCWCP
(College Park, MD)

Network “Backbone”

Supercomputer
(Reston, VA)

Supercomputer
(Orlando, FL)

Functionality already
in place at College
Park as of Jan 2016

- NOMADS
- FTPPRD
- MADIS
- MRMS
- MAG
- VLAB
- Weather.gov
- nowCOAST
- DataStreame

WFOs
122/122 upgr

RFCs
13/13 upgr

National
Centers (upgr)

Internet

External
Partners

CWSUs/CMD
CTR
0/22

The future One-NWS network will consolidate all operational networks (OPSnet, Regional, etc.) under a single managed network.



Background Slides

Services Available on IDP System As of January 2016



Data Available from IDP Hosted Applications as of January 2016



MRMS

The descriptions for the MRMS data sets may be found at the NSSL web site:

<http://www.nssl.noaa.gov/projects/mrms/>

The data sets are available via a real-time LDM feed or HTTP access at <http://mrms.ncep.noaa.gov/data/>. For an LDM feed contact the IDP On-boarding Team at ncep.list.idp_support@noaa.gov. For other IDP applications, contact the On-boarding Team for direct access to the data on the shared disk volume.

MADIS

The descriptions for the MADIS data sets may be found at <https://madis.ncep.noaa.gov/>.

The data sets are available via HTTP, FTP and LDM. A web form for requesting specific data may be found at <https://madis-data.ncep.noaa.gov/>. Users must be registered for all levels of access to the data and should contact the MADIS Helpdesk at madis-support@noaa.gov. The Helpdesk will also assist users who require FTP or LDM access to the data. For other IDP applications, contact the Helpdesk for direct access to the data on the shared disk volume.

MAG

The Model Analyses and Guidance web site (<http://mag.ncep.noaa.gov/>) provides static images of the NCEP model suite.

NOMADS

The NOAA Operational Model Archive and Distribution System web site (<http://nomads.ncep.noaa.gov/>) provides the NCEP model suite output in GRIB2 format. NOMADS provides the user with the ability to subset the model output by time, grid fields and geographic region.



Data Available from IDP Hosted Applications as of January 2016



nowCOAST

nowCOAST v5.0 is a GIS-based online web mapping portal displaying near real-time observations, analyses, tide predictions, model guidance, watches/warnings, and forecasts for the coastal United States. Visual point-and-click access to 60 NOAA data products and services are available to users to assist in areas such as marine transportation, emergency management, search and rescue coordination, HAZMAT response, risk management, and U.S. military planning and operations via <http://nowcoast.noaa.gov>.

VLAB

The NOAA Virtual Lab (<https://vlab.ncep.noaa.gov/>) does not provide data sets, but is a set of development tools for use by software developers bringing applications to the IDP system.

FTPFRD

This FTP service provides numerical model output in GRIB and BUFR formats. Some observational data (surface, upper air, radar) that is used as input to the models is also available. The FTP site may be found at <http://ftpprd.ncep.noaa.gov/>.

WEATHER.GOV

The main web site for the National Weather Service is <http://www.weather.gov/>. This site provides national maps of watches, warnings and observations. Users also have access to web sites for each Weather Forecast Office, where local radar imagery and local forecasts may be found.

DataStreme

The DataStreme application converts raw meteorological data into GIF-based imagery and text products that are provided to the American Meteorological Society (AMS) for use in their K-12 teacher-enhancement course in meteorology. While NCO has supported this application since 2005, Datastreme is now running on a 24x7 operationally supported system. (<http://www.ametsoc.org/amsedu/dstreme/>)



Data Available from IDP Hosted Applications as of January 2016



TGFTP

As part of the continuing NWS Telecommunications Gateway (NWSTG) application transition to IDP, NCEP transitioned the public anonymous ftp services from the legacy systems in Silver Spring to the IDP system in College Park, MD. This ftp server also fulfills international commitments for data distribution and most importantly the migrated application provides backup capabilities for the first time for this service. (<ftp://tgftp.nws.noaa.gov/>)

National Water Center Website

In collaboration with the National Water Center, the NWC official website is hosted and supported by NCEP Central Operations on NOAA's IDP systems. (<http://water.noaa.gov/>)

NOS CHART TILE SERVICE

In collaboration with the National Ocean Service (NOS), Marine Charts Division's (MCD), the existing Navigational Chart Data (ENCD) website is hosted and supported by NCEP Central Operations on NOAA's IDP systems. (<http://www.charts.noaa.gov/>)

HIMAWARI Processing

The Advanced Himawari Imager (AHI) Processing application is operational and supported on the IDP. The AHI retrieves Himawari-8 satellite data from JMA via NESDIS STAR and converts the data to tiles in netCDF4 for use in AWIPS.

National Tsunami Warning Center Website

In collaboration with NTWC, the National Tsunami Warning Center's official website is hosted and supported by NCEP Central Operations on NOAA's IDP systems. (<http://wcatwc.arh.noaa.gov/>)



THANK YOU!

